

### **DETAILED ACTION**

Claims 2, 10, 12-19, 23-30 and 33 are pending.

#### ***Election/Restrictions***

1. Claims 19 and 23 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 16 June 2009.

This application contains claims 19 and 22-23 drawn to an invention nonelected with traverse in the reply filed on 18 September 2009. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01. Said claims will be reconsidered regarding rejoinder based on an amendment to include the allowable subject matter as noted herein.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 10, 12, 14, 16-18, 24-30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shell Internationale Research Maatschappij BV, WO 01/77270 A1 (hereafter Shell), in view of DSM NV, WO 00/58388, in view of Cross, US 1,744,262.

Shell teaches a method for controlling gas hydrates in fluid systems comprising gas, oil and water (see abstract; page 1, lines 1 et seq; page 3, lines 30 et seq; page 5,

lines 21 et seq; and examples). The method comprises adding a polymeric additive to the fluid systems and the additive may be functionalized dendrimeric polymers or functionalized hyperbranched polyesteramides (solid particle). The additive has a number average molecular weight of 670 to 50,000 (see page 7, lines 5-10) and exemplified number average molecular weight of 5890 (page 22, line 11). The chelating polymer would have been inherent to the functionalized hyperbranched polyesteramides due to the availability of free electrons from the nitrogen and oxygen atoms along the polymer chains.

To the extent that Shell differs from the claims in the claimed association of a solid particle with the chelating polymer, said association would have been implicit to treating at least crude oil of Shell (at least page 1, line 8).

Cross (page 2, lines 101 et seq) discloses crude oil contains impurities including water, salt, sand, clay or dirt. Applicant's specification does not define the term "association" and it therefore take the plain meaning in the art, which would include a reversible combination of chemicals. This may include van Der Waals forces, hydrogen bonding among others. Clearly, the chelating function of the Shell materials would implicitly associate with the materials naturally occurring in the crude oil. Furthermore, it is reasonable to expect these to range in size and hydrophobic and/or hydrophilic properties. The claimed association would have been a necessary consequence of the process of performing the Shell process of inhibiting hydrates.

Shell differs from claims 7-9 in the use of siliconized polymers.

Shell (page 5, lines 21 et seq; and page 7, lines 12 et seq) cites reference to WO 00/58388 for how to make hyperbranched polymers and modification of the end groups of the hyperbranched polymers.

DSM (page 6, lines 10 et seq) disclose branched polymers. DSM (page 19, lines 2-5) discloses prefers no chain lengthening or cross-linking. Clearly, DSM suggest dendritic and hyperbranching. DSM (page 17, lines 34 et seq) teaches the branched polymer is reacted with a diisocyanate after which the isocyanate polymer is further reacted with a isocyanate reactive compound as a modifier, such as (page 18 to 19, lines 32 to 1) aminopropyltri(m)ethoxysilane or aminoalkyltrialkoxysilane. DSM (page 16, line 18) teaches alkoxysilane reactive groups as modifiers. This teaching clearly results in siliconized branched polymers.

These references are combinable because they teach related polymers and Shell references DSM for how to make and provide functional groups on the polymers. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the siliconized modifiers for the dendritic and hyperbranched polymers of Shell as obviously contemplated and considered in the Shell reference by citation to the DSM reference.

Shell differs from claims in the combination of polymers. It is generally *prima facie* obvious to use in combination two or more ingredients that have previously been used separately for the same purpose in order to form a third composition useful for that same purpose. *In re Kerkhoven*, 626 F.2d 846, 205 USPQ 1069 (CCPA 1980); *In re Pinten*, 459 F.2d 1053, 173 USPQ 801 (CCPA 1972); *In re Susi*, 440 F.2d 442, 169

USPQ 423 (CCPA 1971); *In re Crockett*, 279 F.2d 274, 126 USPQ 186 (CCPA 1960).

As stated in *Kerkhoven* and *Crockett*, the idea of combining them flows logically from their having been individually taught in the prior art. In the instant case, the use of dendritic, hyperbranched and/or siliconized polymers thereof are clearly contemplated as obvious functional equivalent polymers for contacting with fluids for the advantage of inhibiting gas hydrate formation.

***Allowable Subject Matter***

4. Claims 13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

5. Applicant's arguments with respect to claims 2, 10, 12, 14, 16-18, 24-30 and 33 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant (page 3) asserts the claims do not claim dendritic polymers or functionalized hyperbranched polyesteramides and conclude the Shell Internationale Research Maatschappij BV reference does not anticipate or make obvious the claimed methods. This has not been deemed persuasive since the Shell discloses hyperbranched polymers, which are polyamino polymers. Said distinction is not agreed.

7. Applicant (pages 4 to 6) asserts the Shell reference teaches inhibition and the claims are directed to hydrate formation. This has not been deemed persuasive because the claims are directed to "controlling the formation of crystalline hydrates", which is indistinct from inhibition of the Shell reference.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Daniel S. Metzmaier/  
Primary Examiner, Art Unit 1796**

DSM